

PS-212A

*AEP Model
UK Model
E Model*



STEREO TURNTABLE SYSTEM

SPECIFICATIONS


GENERAL

Power Requirements: 110, 120, 220, 240 V ac adjustable, 50/60 Hz (E model)
240 V ac, 50 Hz (UK model)
220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50/60 Hz (AEP model)


Power Consumption: 6 W

Dimensions: Approx. 410 (w) x 125 (h) x 370 (d) mm
16 (w) x 5 (h) x 14½ (d) inches
including projecting parts and controls

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE  SUR LES DIAGRAMMES SCHEMATIQUES, LES VUES EXPLODÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY.

Weight: Approx. 4.8 kg, 10 lb 10 oz (net)
5.8 kg, 12 lb 13 oz (with shipping carton)

TURNTABLE

Platter: 31 cm, 12¼ inches dia., aluminum-alloy diecast

Motor: DC servo-controlled motor (brushless and slotless)

Drive System: Direct drive

Speeds: 33⅓ rpm, 45 rpm

Pitch Control Range: ±3 %

Wow and Flutter: 0.03 % (WRMS)
±0.004 % (DIN)

S/N Ratio: 70 dB (DIN-B)

TONEARM

Type: Statically balanced, universal

Arm Length: 300 mm, 11¾ inches, overall
216.5 mm, 8½ inches, pivot-to-stylus

Overhang: 16.5 mm, 21/32 inches

Tracking Error: +3°, -1°

— Continued on next page —

SONY®

SERVICE MANUAL

PS-212A

Tracking-force
Adjustment Range: 0 — 3 g
Shell Weight: 6.5 g (UK, AEP model)
13 g with cartridge (E model)
Weight Range of
Cartridge and Shell: 8 — 15 g

CARTRIDGE VL-33G (AEP, UK model)


Type: Moving magnet type
Frequency Response: 10 Hz — 20 kHz
Channel Separation: 20 dB at 1 kHz
Load Impedance: 50 k Ω
Tracking Force: 2—3 g (2.5 g recommended)
Output Voltage: 2.5 mV at 1 kHz, 5 cm/sec, 45°
Stylus: Sony ND-136G (Conical 0.6 mil diamond)
Weight: 5.5 g
(shell and cartridge)

CARTRIDGE VL-14GS (INTEGRATED TYPE) (E model)

Type: Moving magnet type
Frequency Response: 10 Hz — 30 kHz
Channel Separation: 23 dB at 1 kHz
Output Voltage: 2.5 mV at 1 kHz, 5 cm/sec, 45°
Load Impedance: 50 k Ω
Tracking Force: 1.5 — 2.5 g (2 g recommended)
Stylus: Sony ND-14G (Conical 0.6 mil diamond)
Weight: 13 g
(shell and cartridge)

MODEL IDENTIFICATION

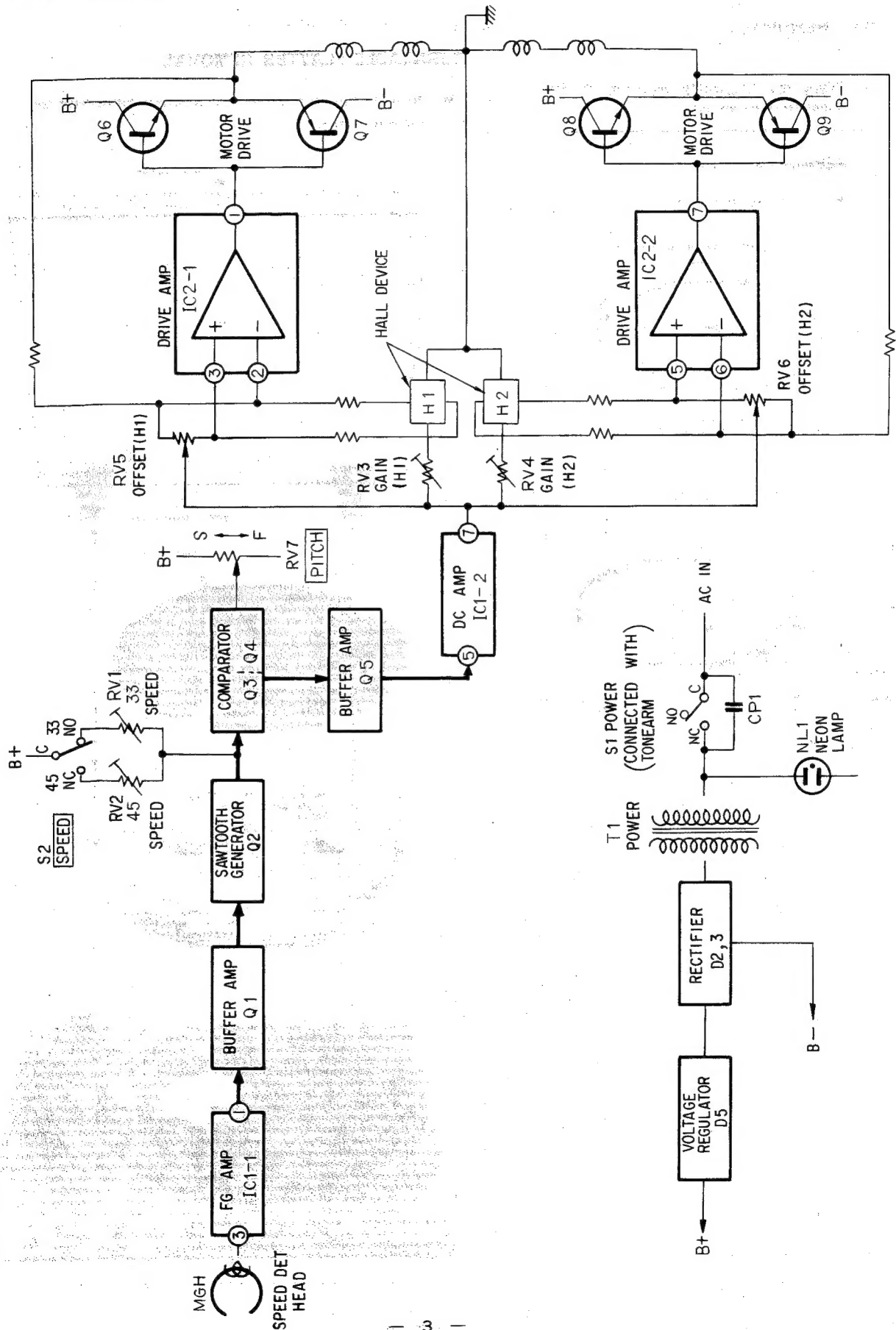
— Specification Label —

SONY	STEREO TURNTABLE SYSTEM
	MODEL NO, PS-212 A
	
	SERIAL NO, _____ MADE IN JAPAN

{ AEP Model: AC 220V 50Hz 6W
UK Model: AC 240V 50Hz 6W
E Model: AC 110, 120, 220, 240V 50/60Hz 6W

SECTION 1 OUTLINE

1-1. BLOCK DIAGRAM



SECTION 2 DISASSEMBLY

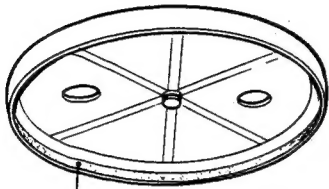
2-1. REMOVAL

- Follow the disassembly procedure in the numerical order given.

REPAIR CAUTION

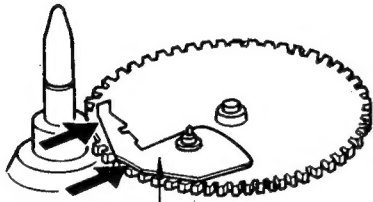
- Turntable handling

bottom view of turntable



Be sure not to spoil the magnetic coating. (dark brown color)

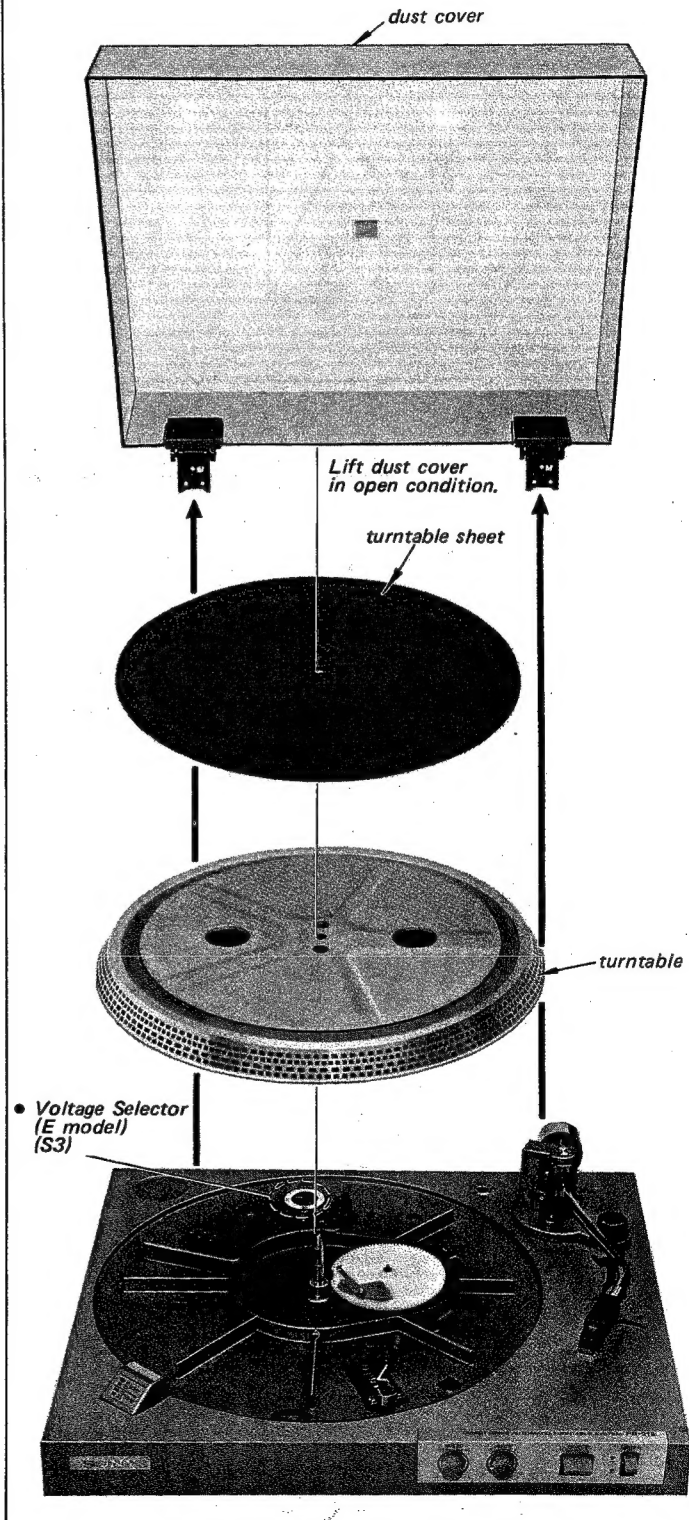
- Turntable installation



Be sure that the metal plate does not protrude outside the white gear.

TURNTABLE PLATTER REMOVAL

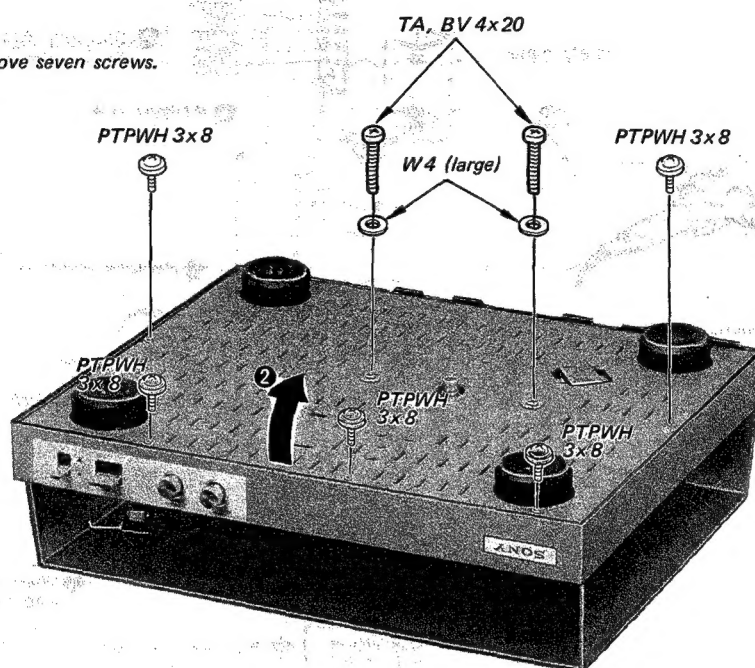
- Do not remove the dust cover when removing the bottom board.



BOTTOM BOARD REMOVAL

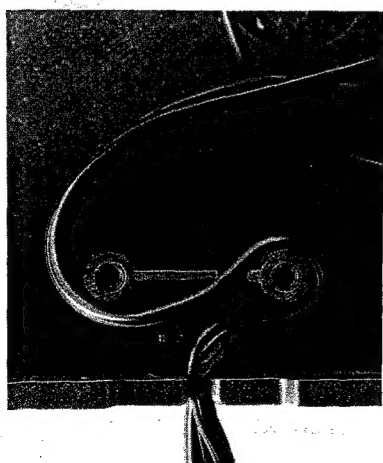
- Be sure that the turntable is removed.

1 Remove seven screws.

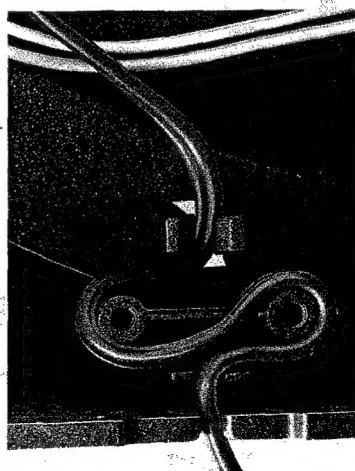


CORD INSTALLATION

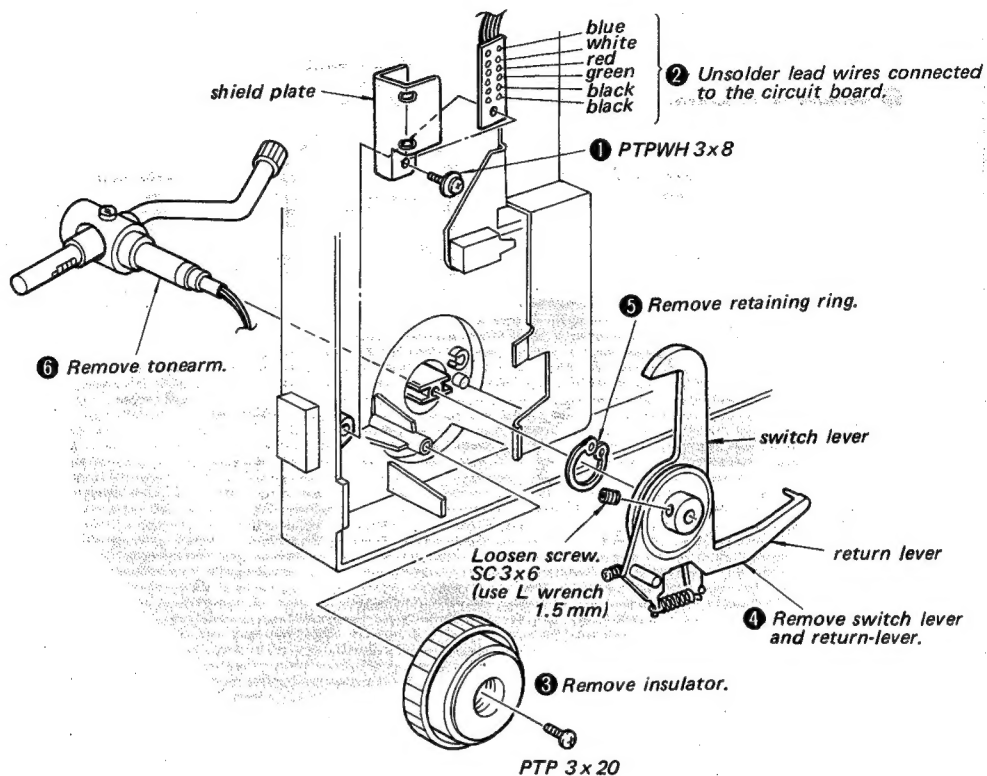
- Phono plug w/cord



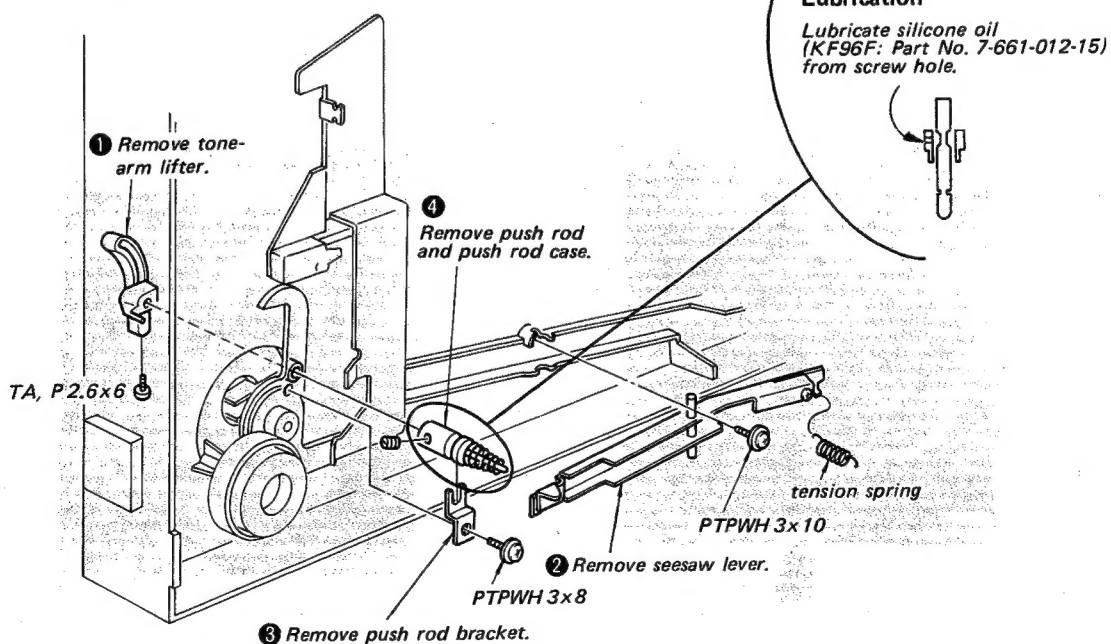
- Power cord



TONEARM REMOVAL

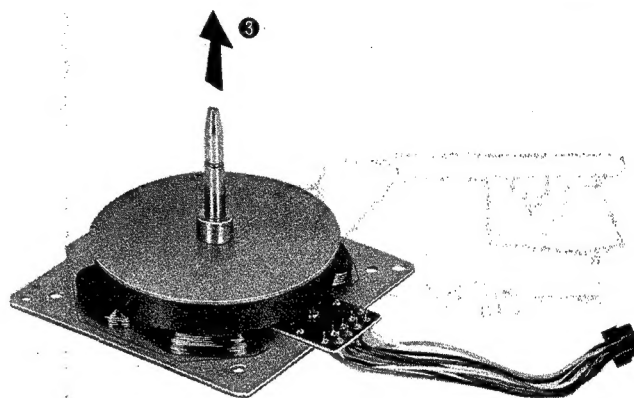
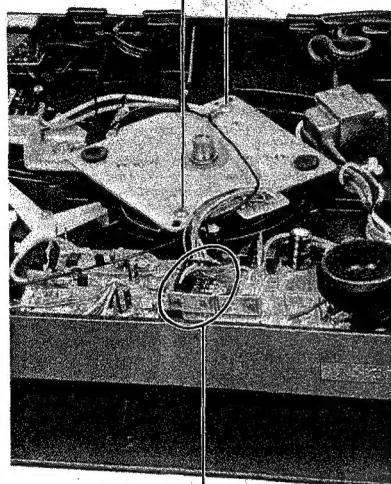


ARM LIFTER REMOVAL

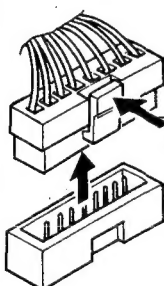


MOTOR REMOVAL

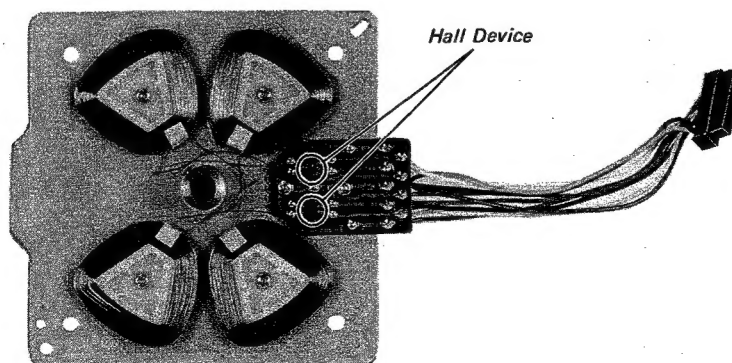
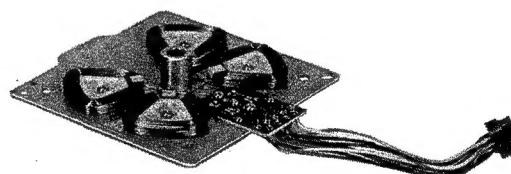
② TA, BV 4x10



connector



① Press here and extract the connector.

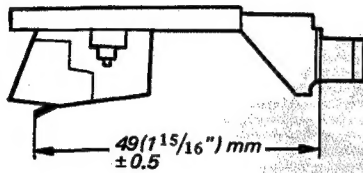


CARTRIDGE INSTALLATION

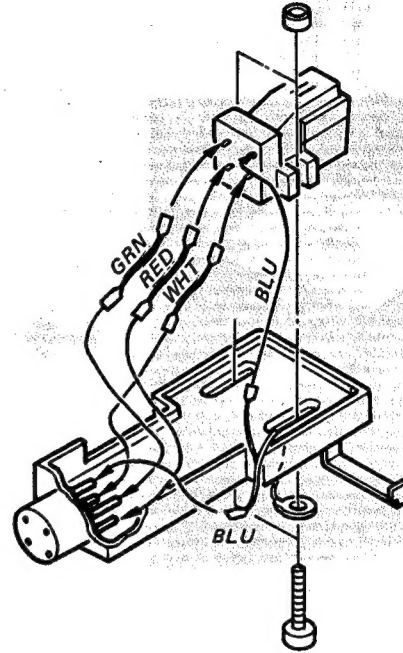
- AEP, UK model

Install the cartridge into the shell with the mounting screws so that the distance between the shell end and the stylus tip is 49 mm ($1\frac{15}{16}$ inches).

Fasten the screws lightly so that the cartridge can slide for adjustment.

**LEAD WIRE CONNECTION**

- AEP, UK model



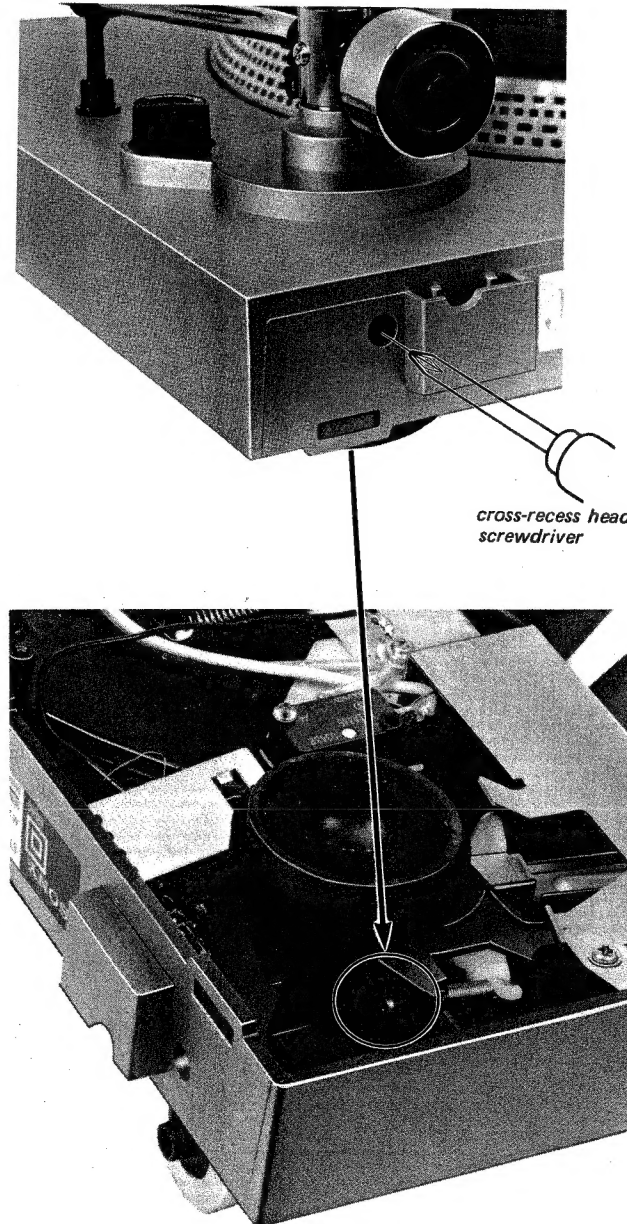
SECTION 3 ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

Automatic Return Position Adjustment

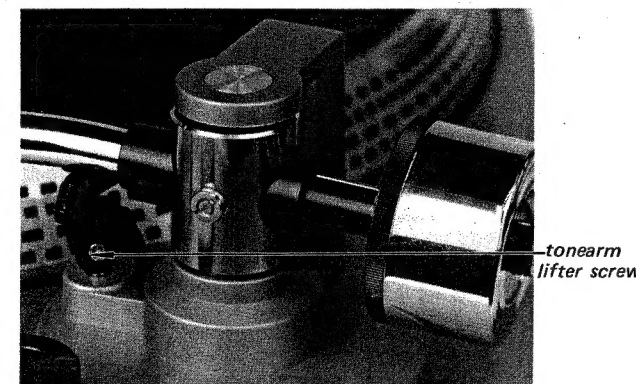
1. Reject the tonearm by REJECT lever.
2. Bring the tonearm to the automatic-return test groove (inside portion) of the test record (YFSB-6), and adjust the screw for returning the tonearm at count 15 ~ 17.

Turning direction	Automatic return
clockwise	late
counterclockwise	early

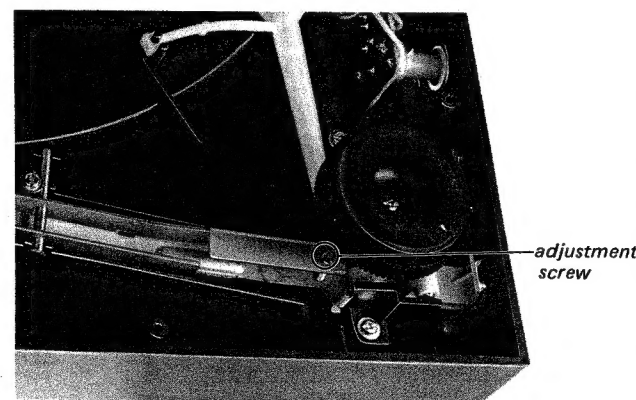


Tonearm Height Adjustment

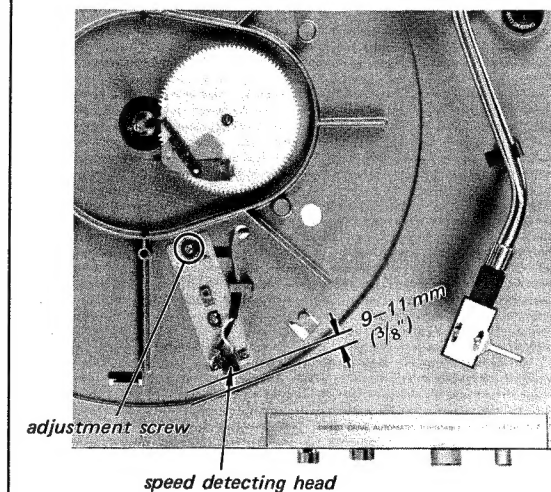
- A)
1. Bring the tonearm toward the inner of the record and put the stylus in the last groove of the record.
 2. Slowly turn the turntable by hand to lift the tonearm.
 3. Make sure that the clearance between the stylus tip and the record is 4 ~ 10 mm.
 4. If necessary, adjust the height of the tonearm by turning the tonearm lifter screw.
 5. After the adjustment, make sure that the tonearm smoothly returns to the tonearm rest.



- B)
1. Bring the tonearm to the desired position on the record.
 2. Lift the cueing lever and make sure that the clearance between the stylus tip and the record is 4 ~ 10 mm.
 3. If necessary, adjust the height of the tonearm by turning the adjustment screw. (Turn clockwise to raise the tonearm height.)

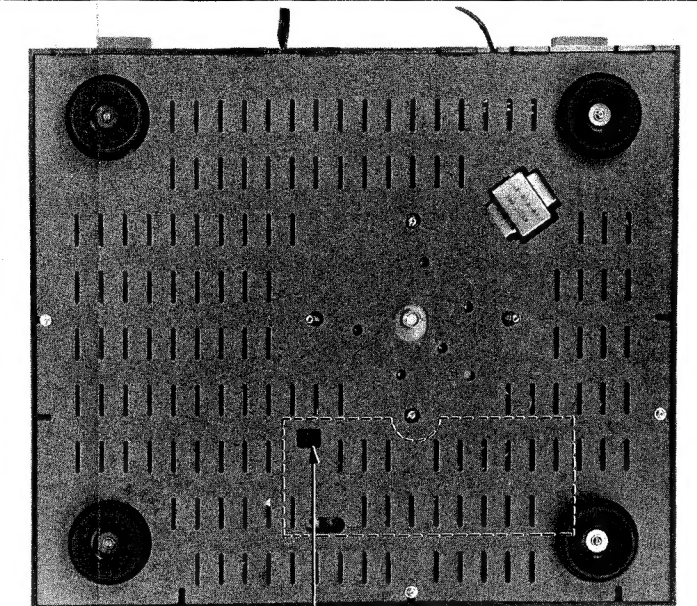


Speed Detecting Head Output Level Adjustment

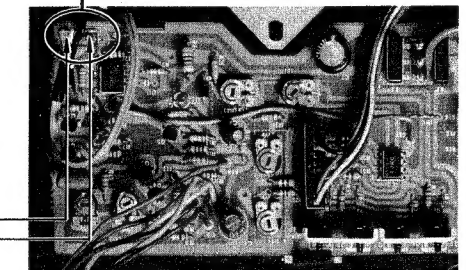


1. Set the head deck as shown.
2. Make sure that the VTVM reading is 10 ~ 50 mV ac.
3. If necessary, adjust the position of the head deck by loosening the adjustment screw.

Note: Make sure that the head does not touch the turntable.



VTVM
33 rpm
10 ~ 50 mV ac

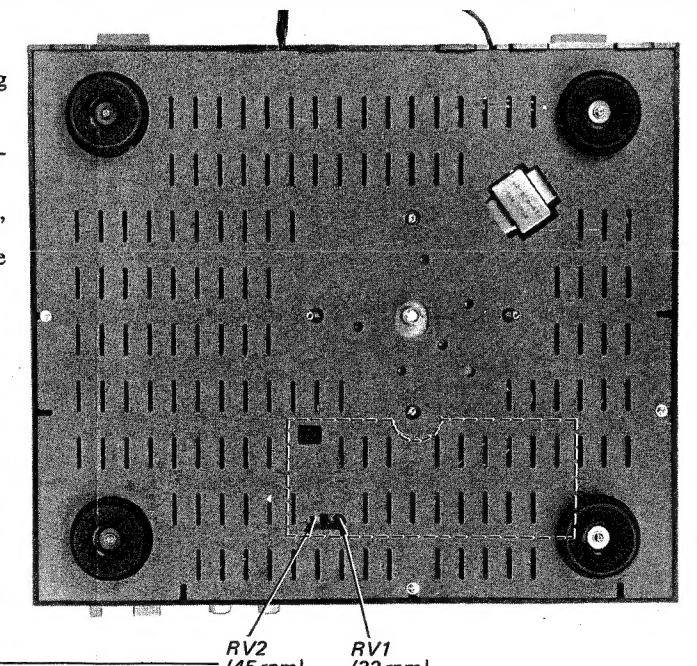
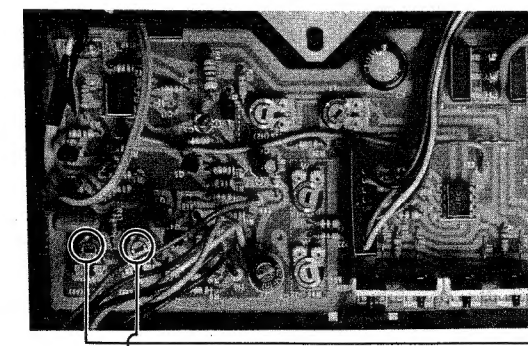


3-2. ELECTRICAL ADJUSTMENTS

Turntable Speed Adjustment

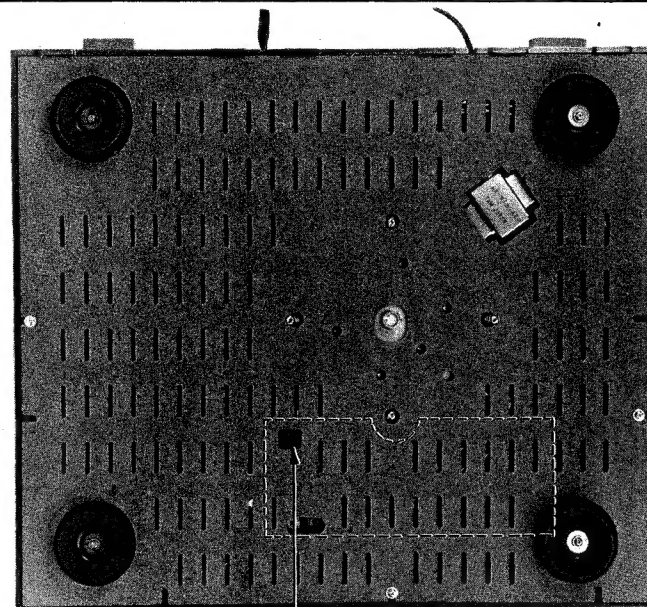
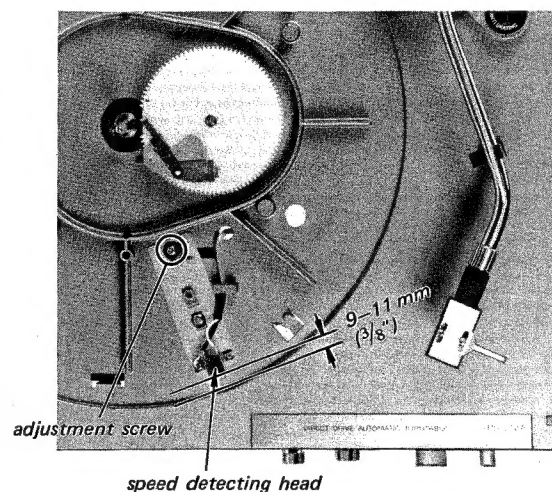
If correct speed cannot be obtained by adjusting the PITCH control knob, adjust RV1 or RV2.

1. Set the PITCH control knob to the mechanical-mid position.
2. Set the SPEED selector knob to "33" or "45" position and adjust RV1 or RV2 so that the stroboscope pattern appears stationary.



RV2 (45 rpm) RV1 (33 rpm)

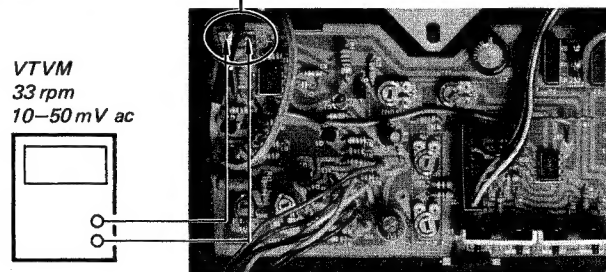
Speed Detecting Head Output Level Adjustment



1. Set the head deck as shown.
2. Make sure that the VTVM reading is 10–50 mV ac.
3. If necessary, adjust the position of the head deck by loosening the adjustment screw.

Note: Make sure that the head does not touch the turntable.

VTVM
33 rpm
10–50 mV ac

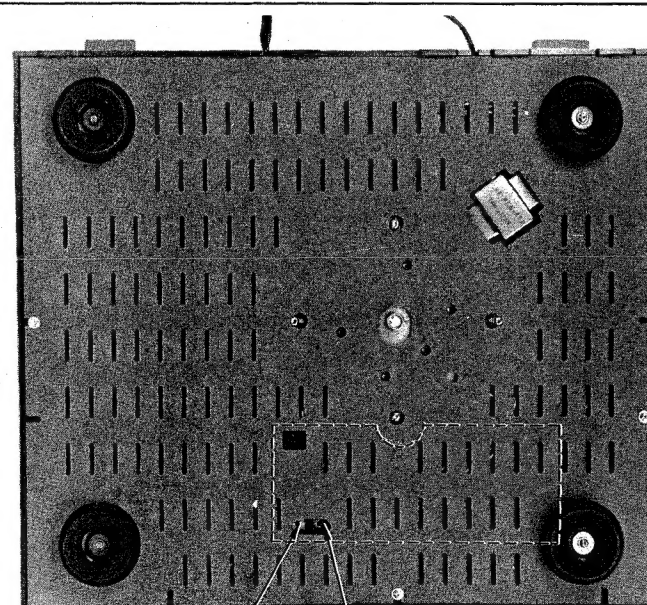
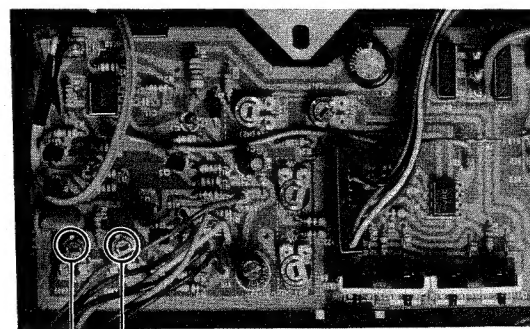


3-2. ELECTRICAL ADJUSTMENTS

Turntable Speed Adjustment

If correct speed cannot be obtained by adjusting the PITCH control knob, adjust RV1 or RV2.

1. Set the PITCH control knob to the mechanical-mid position.
2. Set the SPEED selector knob to "33" or "45" position and adjust RV1 or RV2 so that the stroboscope pattern appears stationary.



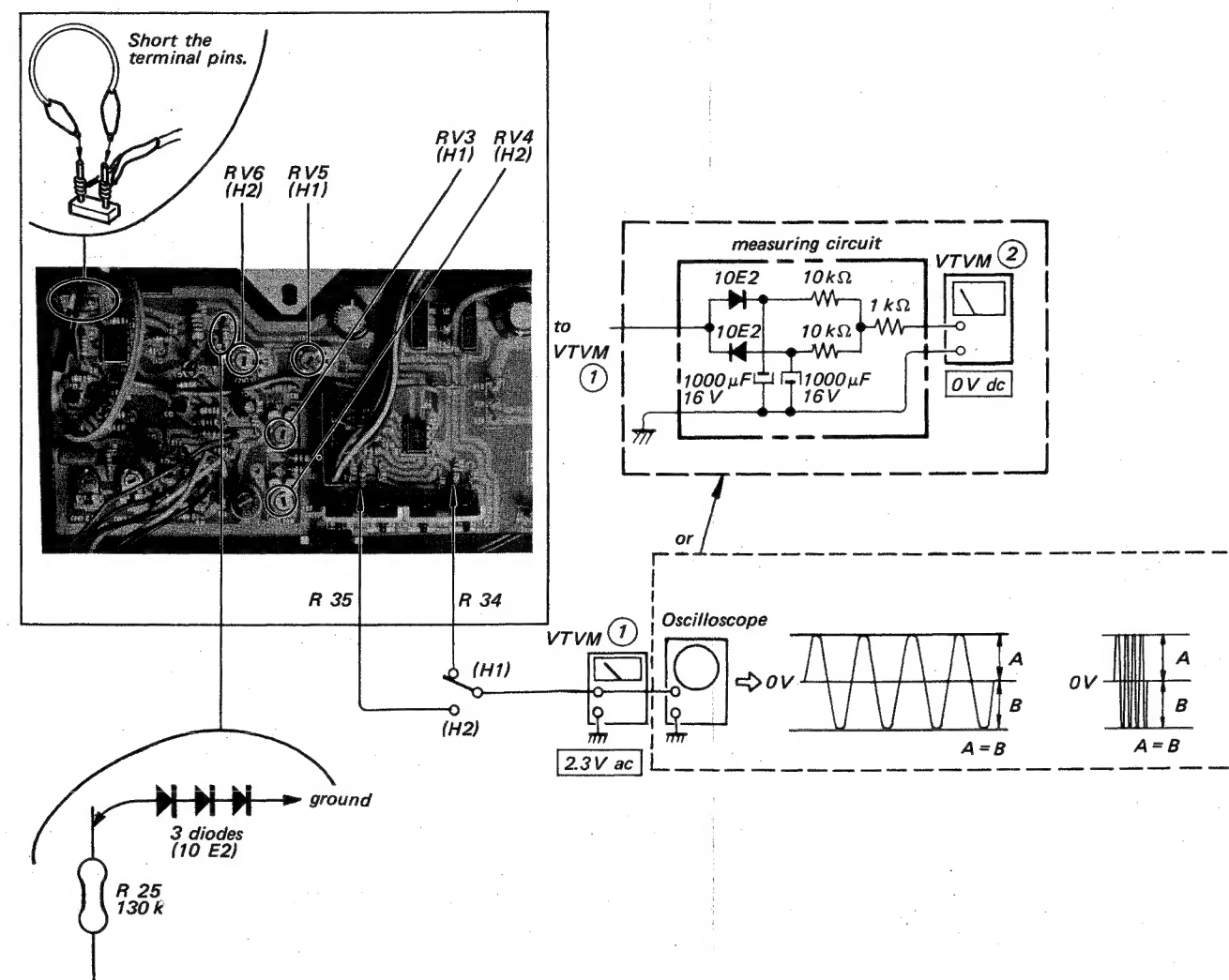
RV2
(45 rpm)

RV1
(33 rpm)

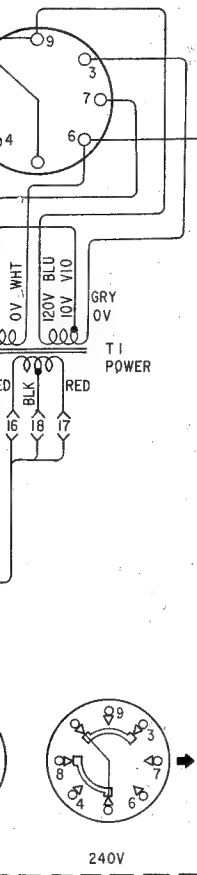
Motor Amp Offset Adjustment and Hall Device Gain Adjustment

1. Short the terminal pins as shown.
2. Connect three diodes (10E2) as shown.
3. Connect VTVM (2) or oscilloscope to H1 and adjust RV5 for 0 V dc VTVM reading or so that the waveform on oscilloscope becomes as shown.
4. Connect VTVM (1) to H1 and adjust RV3 for 2.3 V ac reading on VTVM.
5. Connect VTVM (2) or oscilloscope to H2 and adjust RV6 for 0 V dc VTVM reading or so that the waveform on oscilloscope becomes as shown.
6. Connect VTVM (1) to H2 and adjust RV4 for 2.3 V ac reading on VTVM.

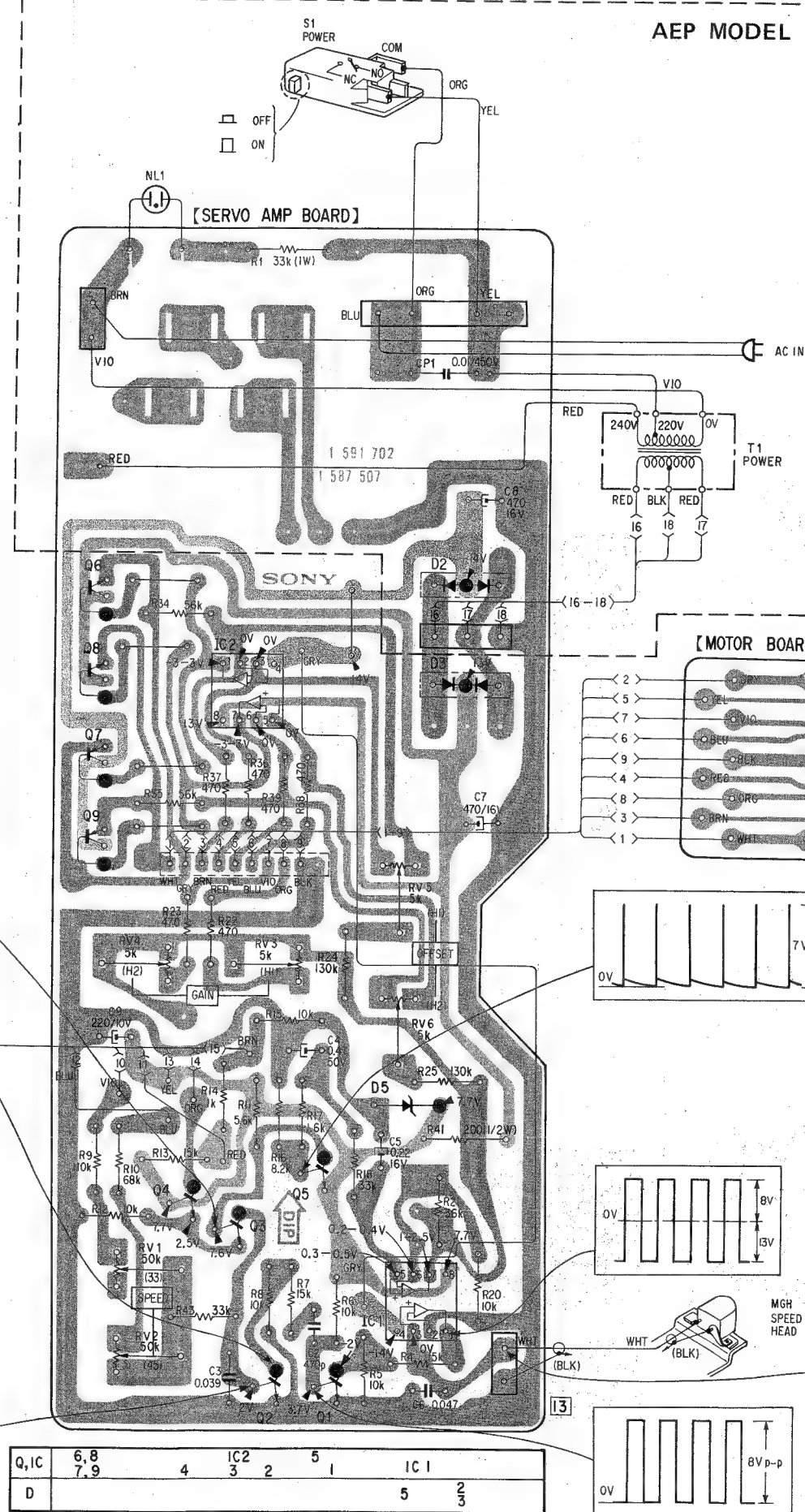
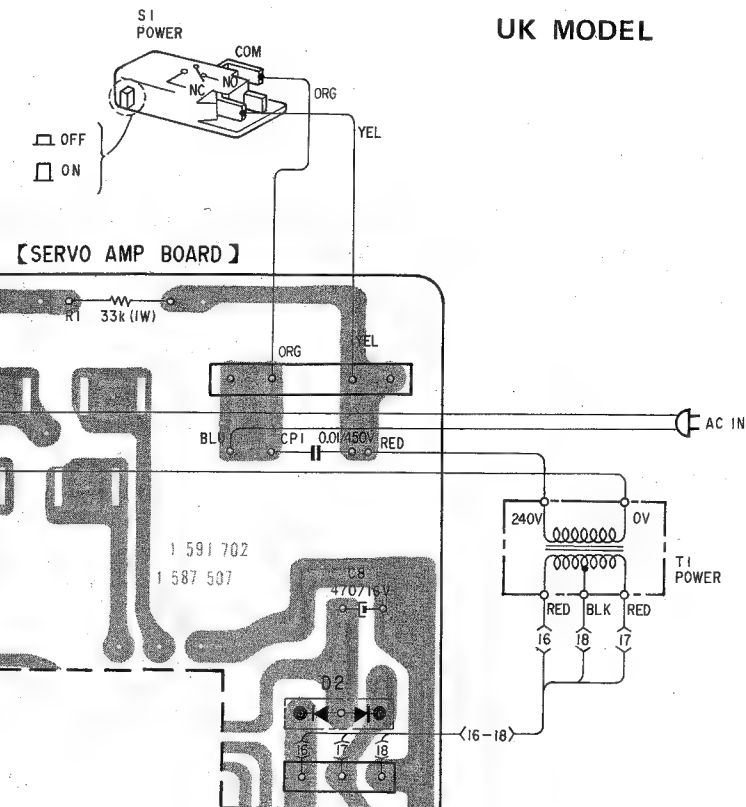
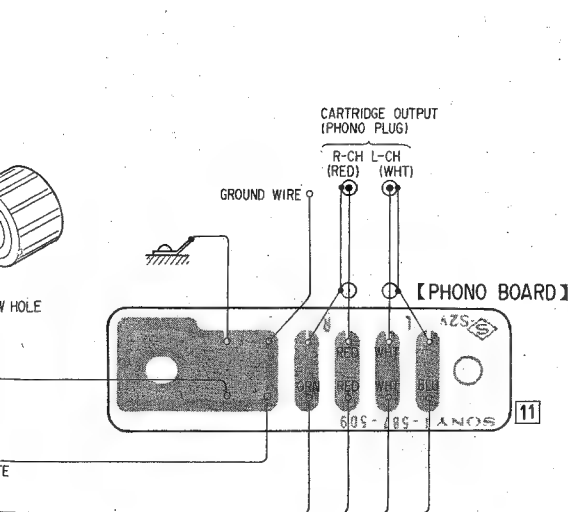
Note: Set the sweep time longer as for easy waveform checking.



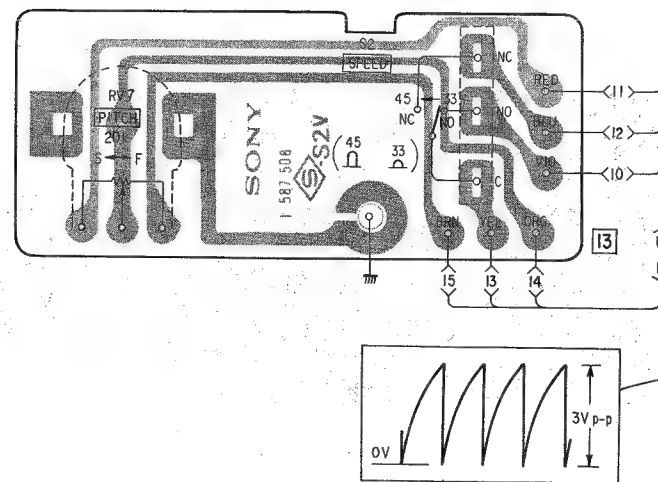
VOLUME SELECTOR



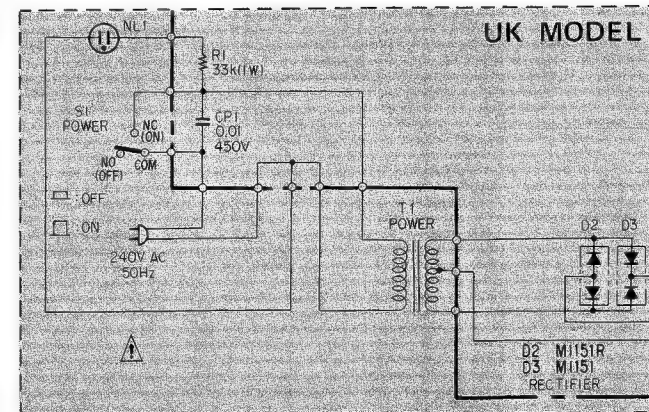
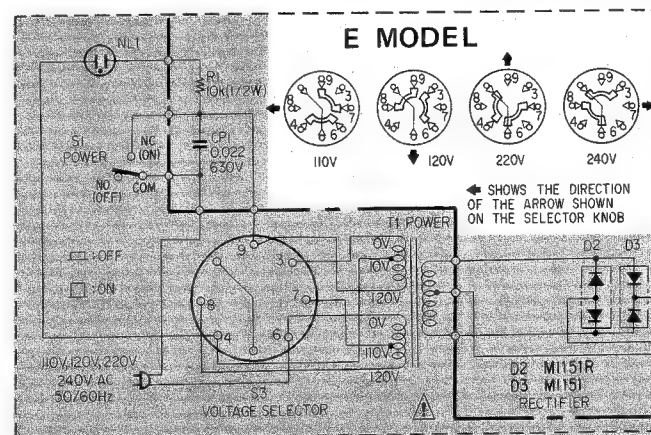
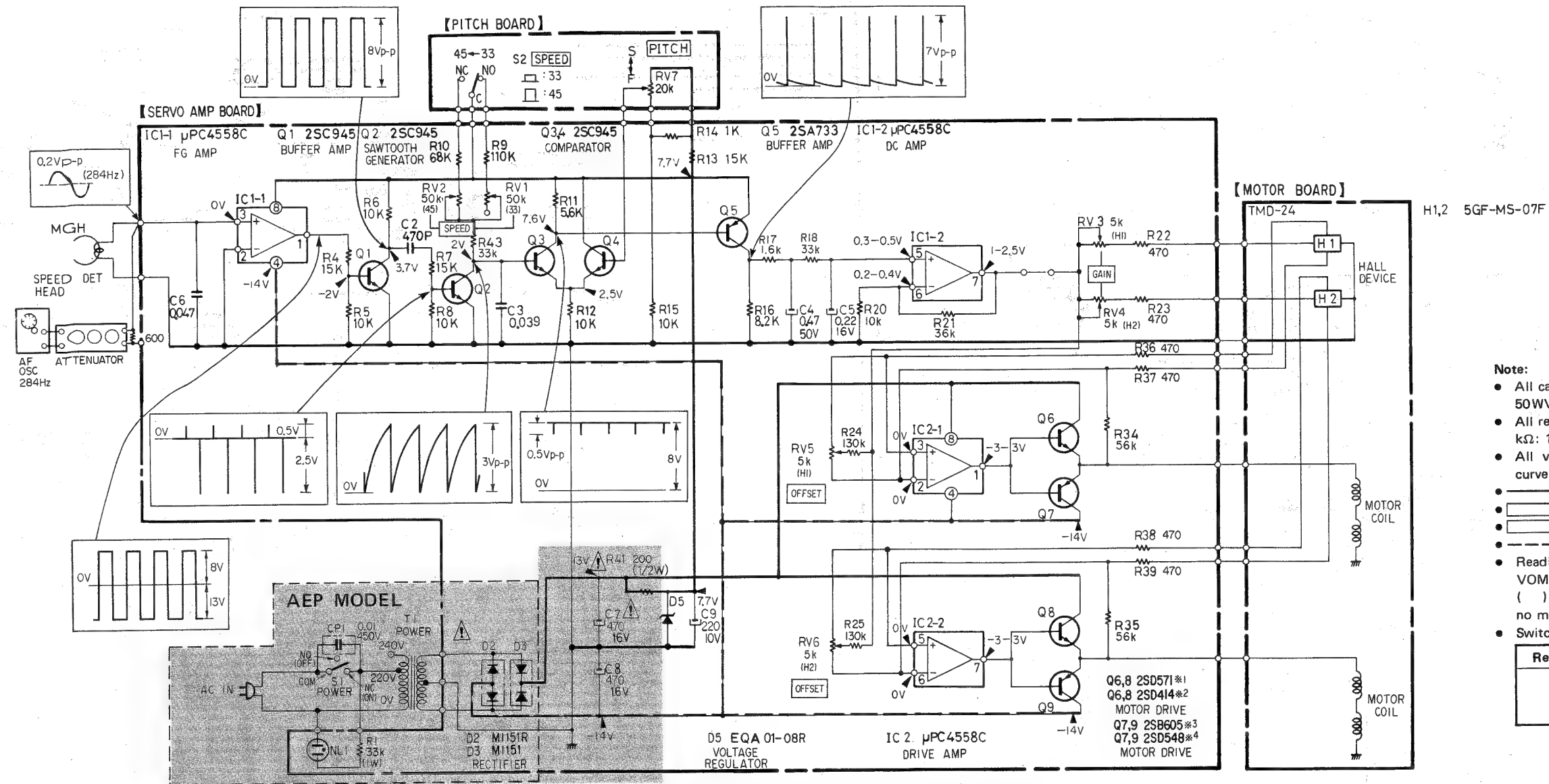
PHONO BOARD



PITCH BOARD



4-2. SCHEMATIC DIAGRAM

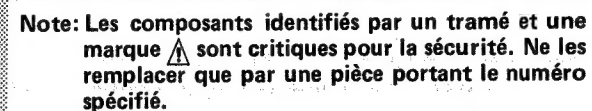


Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

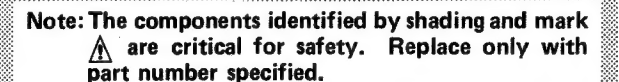
Note: Les composants identifiés par un tramé et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

D

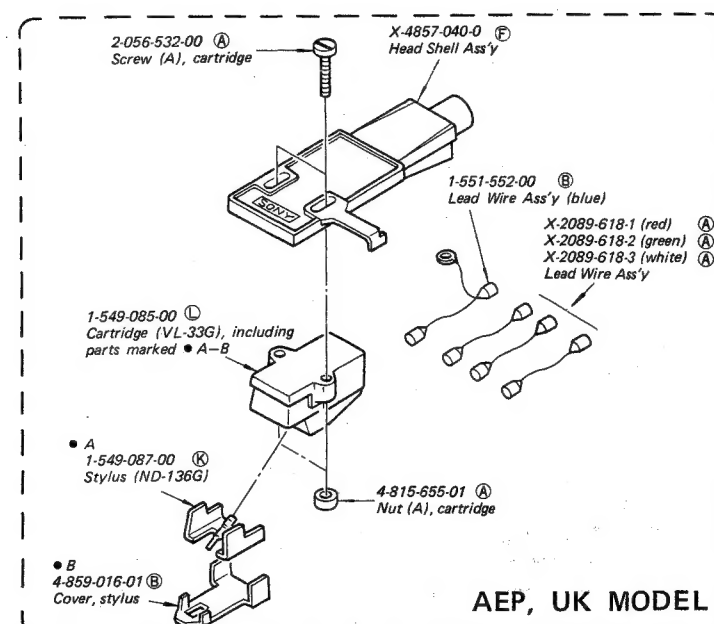
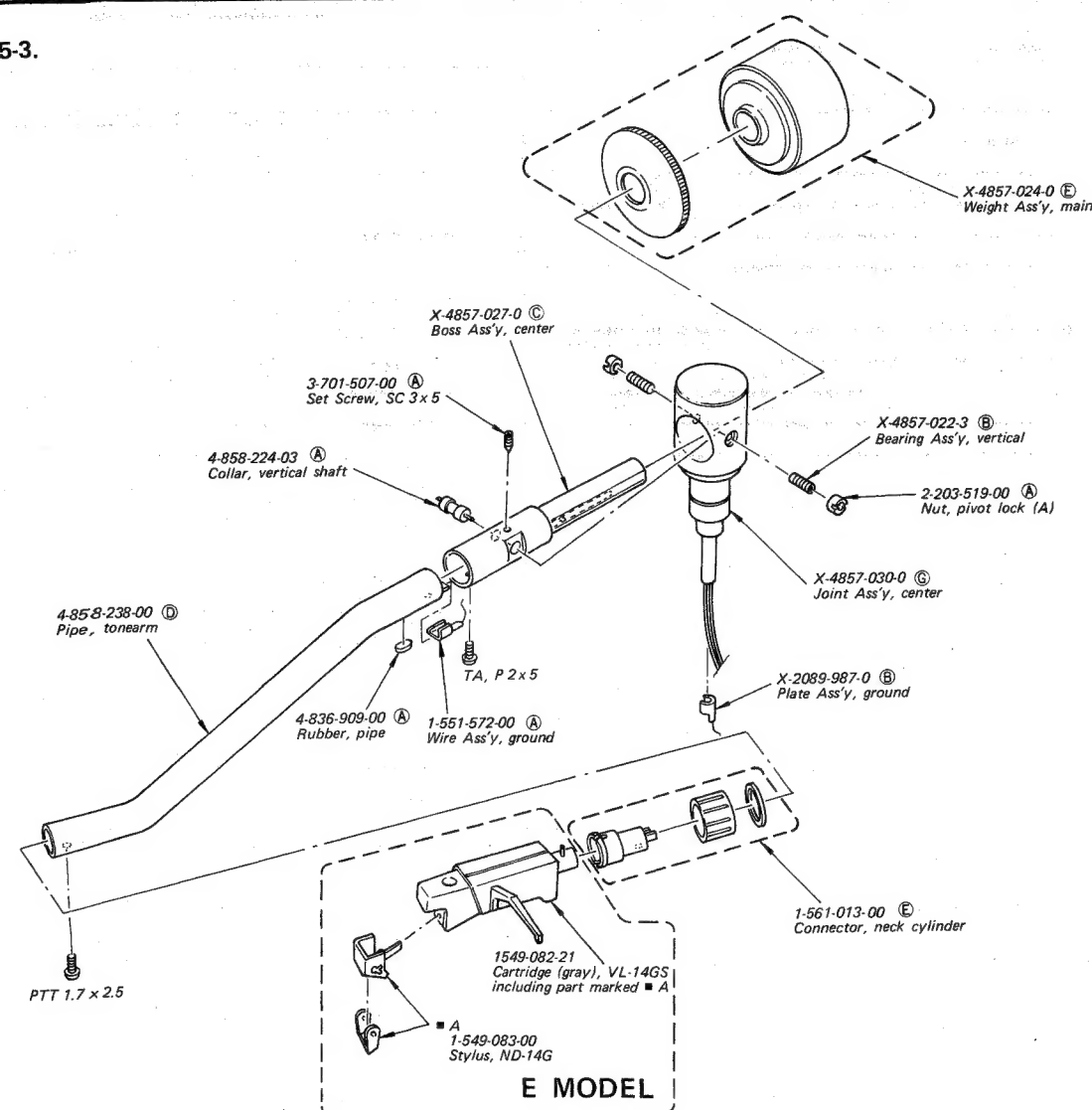
!



5



5-3.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head
- Circled letters (A) to (Z) are applicable to European models only.

MEMO

SECTION 6
ELECTRICAL PARTS LIST

Note: Circled letters (A to Z) are applicable to European models only.

Ref. No.	Part No.	Description
SEMICONDUCTORS		
Transistors		
⇒ Q1-4	8-729-663-4 7	Ⓒ 2SC1364
⇒ Q5	8-727-788-0 0	Ⓓ 2SA1027R
Q6,8	8-729-157-1 1	2SD571 (E model)
Q6,8	8-729-141-4 3	Ⓓ 2SD414 (AEP, UK model)
Q7,9	8-729-160-5 1	2SB605 (E model)
Q7,9	8-729-154-8 3	Ⓒ 2SB548 (AEP, UK model)
ICs		
IC1,2	8-759-145-5 8	Ⓓ μ PC4558C
Diodes		
⇒ D2	Ⓐ 8-719-501-3 4	Ⓒ S3VC40R
⇒ D3	Ⓐ 8-719-500-3 4	Ⓒ S3VC40
⇒ D5	8-719-931-0 8	Ⓓ EQB01-08
Hall Devices		
H1,2	8-719-905-0 7	Ⓒ 5GF-MS-07F
TRANSFORMERS		
T1	Ⓐ 1-446-099-0 0	POWER (E model)
T1	Ⓐ 1-446-100-0 0	Ⓓ POWER (UK model)
T1	Ⓐ 1-446-415-0 0	Ⓙ POWER (AEP model)

CAPACITORS

All capacitors are in μ F and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics. p: μ F, elect: electrolytic

C2	1-102-114-0 0	Ⓐ 470 p	ceramic
C3	1-108-360-0 0	Ⓐ 0.039	mylar
C4	1-121-726-0 0	Ⓐ 0.47	50 V elect
C5	1-131-453-0 0	Ⓓ 0.22	16 V tantalum
C6	1-101-006-0 0	Ⓐ 0.047	ceramic
C7,8	Ⓐ 1-123-323-0 0	Ⓓ 470	16 V elect

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: The components identified by shading and mark Ⓐ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description
CP1	Ⓐ 1-129-718-0 0	0.022 630 V (E model)
CP1	Ⓐ 1-130-196-0 0	Ⓒ 0.01 450 V polypropylene (AEP, UK model)
RESISTORS		
All resistors are in ohms. Common $\frac{1}{4}$ W carbon resistors are omitted. Refer to the list on page 23 for their part numbers.		
R1	Ⓐ 1-244-897-0 0	Ⓐ 10 k $\frac{1}{4}$ W (E model)
R1	Ⓐ 1-213-161-0 0	Ⓓ 33 k 1W (AEP, UK model)
R22,23 R36-39	1-246-465-1 5	Ⓐ 470
R41	Ⓐ 1-244-856-0 0	Ⓐ 200 $\frac{1}{4}$ W
RV1,2	1-226-238-0 0	Ⓐ 50 k, adjustable; speed
RV3-6	1-226-235-0 0	Ⓐ 5 k, adjustable; gain, offset
RV7	1-535-502-XX	Ⓐ 20 k, variable; PITCH

SWITCHES

S1	Ⓐ 1-516-657-0 0	Miniature, POWER (E model)
S1	Ⓐ 1-516-889-0 0	Ⓓ Miniature, POWER (AEP, UK model)
S2	1-552-414-0 0	Ⓓ Miniature, SPEED
S3	Ⓐ 1-526-576-0 0	Voltage Selector (E model)

MISCELLANEOUS

MGH	1-543-093-0 0	Ⓓ Head, speed det
NL1	Ⓐ 1-519-135-1 1	Ⓐ Lamp, neon
X-2089-618-1	Ⓐ	Lead Wire (red)
X-2089-618-2	Ⓐ	Lead Wire (green)
X-2089-618-3	Ⓐ	Lead Wire (white)
1-462-159-0 0	Ⓓ	Coil, motor
Ⓐ 1-534-817-XX	Ⓓ	Cord, power (AEP model)
1-549-082-21		Cartridge (gray), VL-14GS11 (E model)
1-549-083-0 0		Stylus, ND-14G (E model)

Note: Les composants identifiés par un tramé et une marque Ⓐ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
1-549-085-0 0	Ⓓ	Cartridge, VL33G including;
1-549-087-0 0	Ⓓ	Stylus (ND-136G) (AEP, UK model)
1-551-497-0 0	Ⓓ	Cord, w/phono plug
1-551-552-0 0	Ⓓ	Wire Ass'y, lead
1-551-572-0 0	Ⓐ	Wire Ass'y, ground
Ⓐ 1-551-530-0 0		Cord, power (E model: euro-plug)
Ⓐ 1-551-472-0 0		Cord, power (E model: parallel blade plug)
Ⓐ 1-551-884-0 0	Ⓓ	Cord, power (UK model)
1-561-013-0 0	Ⓓ	Connector, neck cylinder

PACKING MATERIALS AND ACCESSORIES

Part No.	Description
X-4857-024-0	Ⓓ Weight Ass'y, main
3-701-630-0 0	Ⓐ Bag, polyethylene
3-701-634-0 0	Ⓐ Bag, polyethylene
3-701-806-0 0	Ⓐ Adaptor, 45
3-770-555-5 2	Manual, instruction (E model)
3-770-900-1 1	Ⓓ Manual, instruction (AEP, UK model)
3-793-395-1 1	Ⓓ Gauge, tracking error
3-794-123-1 1	Ⓓ Label, caution (for drive gear)
4-858-247-0 0	Ⓓ Sheet, turntable
4-858-287-0 0	Ⓐ Cushion, upper
4-858-288-0 0	Ⓓ Cushion, lower
4-858-289-0 0	Ⓓ Holder, turntable
4-858-290-0 0	Ⓐ Sheet, protection
4-858-292-0 0	Ⓓ Bag, protection
4-859-036-0 0	Ⓓ Carton, individual

Note: The components identified by shading and mark Ⓐ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque Ⓐ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

1/4 WATT CARBON RESISTORS [Ⓐ]Note: Circled letter [Ⓐ] is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:

P 3 x 10

L: Length in mm

D: Diameter in mm

Type of head

Indicated slotted-head only.

Unless otherwise indicated, it means cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazer-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	